Comparisons of Job Characteristics

Focus Occupation: Computer Programmers (15-1021)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge — Similarity of Focus Occupation to Associated Occupation: 97

Focus Occupation: Computer Programmers (15-1021)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Computers and Electronics	8.4	23.8	24.2	0	Current knowledge level may be sufficient
Mathematics	9.2	15.4	13.1	<	Expanded education and/or training may be required
Engineering and Technology	5.7	10.1	5.7	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills — Similarity of Focus Occupation to Associated Occupation: 72

Focus Occupation: Computer Programmers (15-1021)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Programming	2.2	14.6	17.3	>	Skill level is likely sufficient
Complex Problem Solving	9.1	14.1	11.2	<	A higher skill level may be required
Troubleshooting	4.5	13.5	2.6	<<	Extensive development of skills in this area may be required
Systems Evaluation	6.4	13.4	10.1	<<	Extensive development of skills in this area may be required
Systems Analysis	6.5	13.3	9.2	<<	Extensive development of skills in this area may be required
Mathematics	6.2	12.0	9.2	<<	Extensive development of skills in this area may be required
Operations Analysis	5.0	11.4	10.1	<	A higher skill level may be required
Technology Design	2.6	10.3	6.2	<<	Extensive development of skills in this area may be required

The maximum possible rating is 25.

Abilities	Similarity of Focus Occupation to Associated Occupation: 96

Focus Occupation: Computer Programmers (15-1021)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Deductive Reasoning	10.6	13.6	12.2	<	Some improvement in abilities may be required
Mathematical Reasoning	6.3	12.4	10.2	<	Some improvement in abilities may be required
Fluency of Ideas	7.6	11.9	8.3	<<	Extensive improvement in abilities may be required
Number Facility	6.3	11.2	9.6	<	Some improvement in abilities may be required
Category Flexibility	9.0	11.1	9.4	<	Some improvement in abilities may be required
Originality	7.6	10.8	8.7	<	Some improvement in abilities may be required
Selective Attention	8.7	10.5	9.3	<	Some improvement in abilities may be required
Speed of Closure	5.9	8.1	3.7	<<	Extensive improvement in abilities may be required

The maximum possible rating is 25.

Activities that Both Occupations Have in Common	Similarity of Focus Occupation to Associated Occupation: 92

Focus Occupation: Computer Programmers (15-1021)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Work Activities	Exclusivity of Activity
Adjust computer operation system	84
Communicate technical information	4
Consult with customers concerning needs	69
Design computer hardware or software interface	87
Develop computer performance standards	87
Develop mathematical or computer languages	89
Develop or maintain databases	30
Develop tables depicting data	33
Evaluate computer system user requests or requirements	81
Follow data security procedures	77
Follow data storage procedures	75

Monitor computer operation	85
Prepare technical reports or related documentation	22
Program computers for electronic engineering applications	87
Program computers using existing software	85
Program mainframe computer	84
Provide technical computer training	82
Recommend software or hardware purchases	85
Revise or correct errors in computer programs, software, or systems	85
Supervise programming personnel	95
Test computer programs or systems	78
Use computer programming language	82
Use computers to enter, access or retrieve data	3
Use knowledge of mainframe computers	78
Use project management techniques	47
Use spreadsheet software	18
Write computer software, programs, or code	84
Write documentation for computer programming	87

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 93

Focus Occupation: Computer Programmers (15-1021)
Associated Occupation: Computer Software Engineers, Applications (15-1031)

Tools and Technologies	Exclusivity
Business function specific software	1
Computers	1
Content authoring and editing software	1
Content management software	6
Data management and query software	1
Development software	4
Industry specific software	1
Network applications software	1
Operating environment software	12

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.